



*Classifying veldfire risk in South
Africa for the administration of the
legislation regarding fire management*

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PRESENTATION STRUCTURE

1. INTRODUCTION
2. LEGISLATION
3. ASSESSING and CLASSIFYING VELDFIRE RISK
4. ASSIGNING VELDFIRE RISK
5. CONCLUDING REMARKS

1. INTRODUCTION

- ❑ Veldfires are inevitable, necessary and can do damage
- ❑ Veldfire risk includes damage to assets and ecologically inappropriate fire regimes
- ❑ Commercial forest plantations:
 - ❑ 1.26 million ha
 - ❑ e.g. During 2003, 30 000 ha were lost to fire
- ❑ Applying ecological information to veld management



2. LEGISLATION

- ❑ National Veld and Forest Fires Act:
 - ❑ a national framework
 - ❑ consistent, integrated veldfire management
 - ❑ due consideration of risk
 - ❑ provides for Fire Protection Associations
 - ❑ readiness for fire fighting

- ❑ Veldfire management is a local government (municipal) responsibility

Purpose of the national veldfire risk assessment (profile)

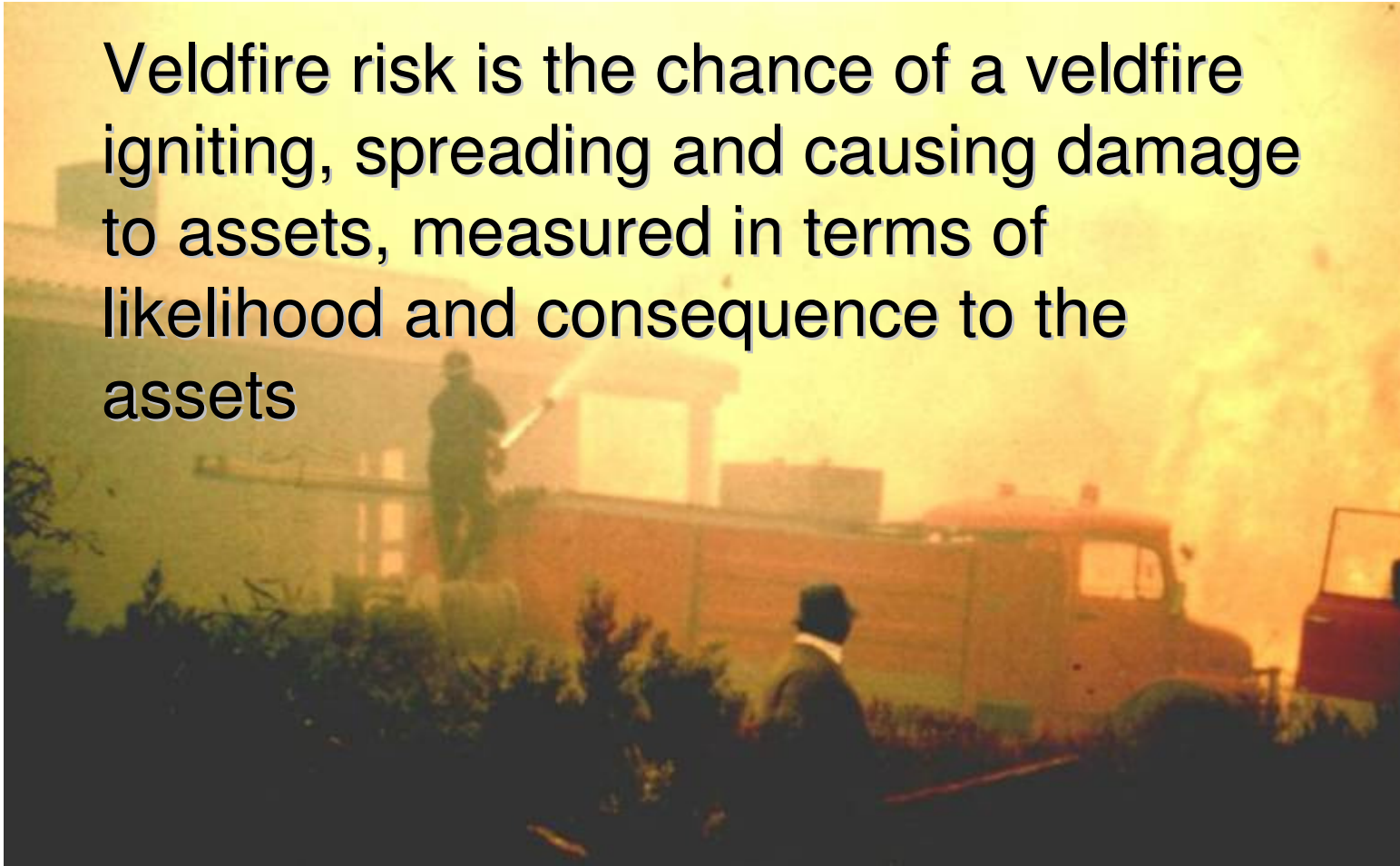
- ❑ Guide interpretation of the National Veld and Forest Fire Act where it refers to veldfire risk
 - ❑ e.g. Chapter 2, on the formation of Fire Protection of Fire Protection Associations, and
 - ❑ Chapter 4, on veldfire prevention through firebreaks
- ❑ National Disaster Management Framework key performance area 2: Risk assessment and monitoring:
 - ❑ “All national organs of state must carry out risk assessments for priority disaster risks relevant to their functional areas”
- ❑ Develop a broad categorisation of risk so that risk reduction efforts can be directed to the worst problems first

Integrated veldfire management

- ❑ Prescribed burning
- ❑ Wildfire suppression
- ❑ Risk management
- ❑ Training and awareness
- ❑ Resource management and co-ordination
- ❑ Ecosystem management

3. ASSESSING and CLASSIFYING VELDFIRE RISK

Veldfire risk is the chance of a veldfire igniting, spreading and causing damage to assets, measured in terms of likelihood and consequence to the assets



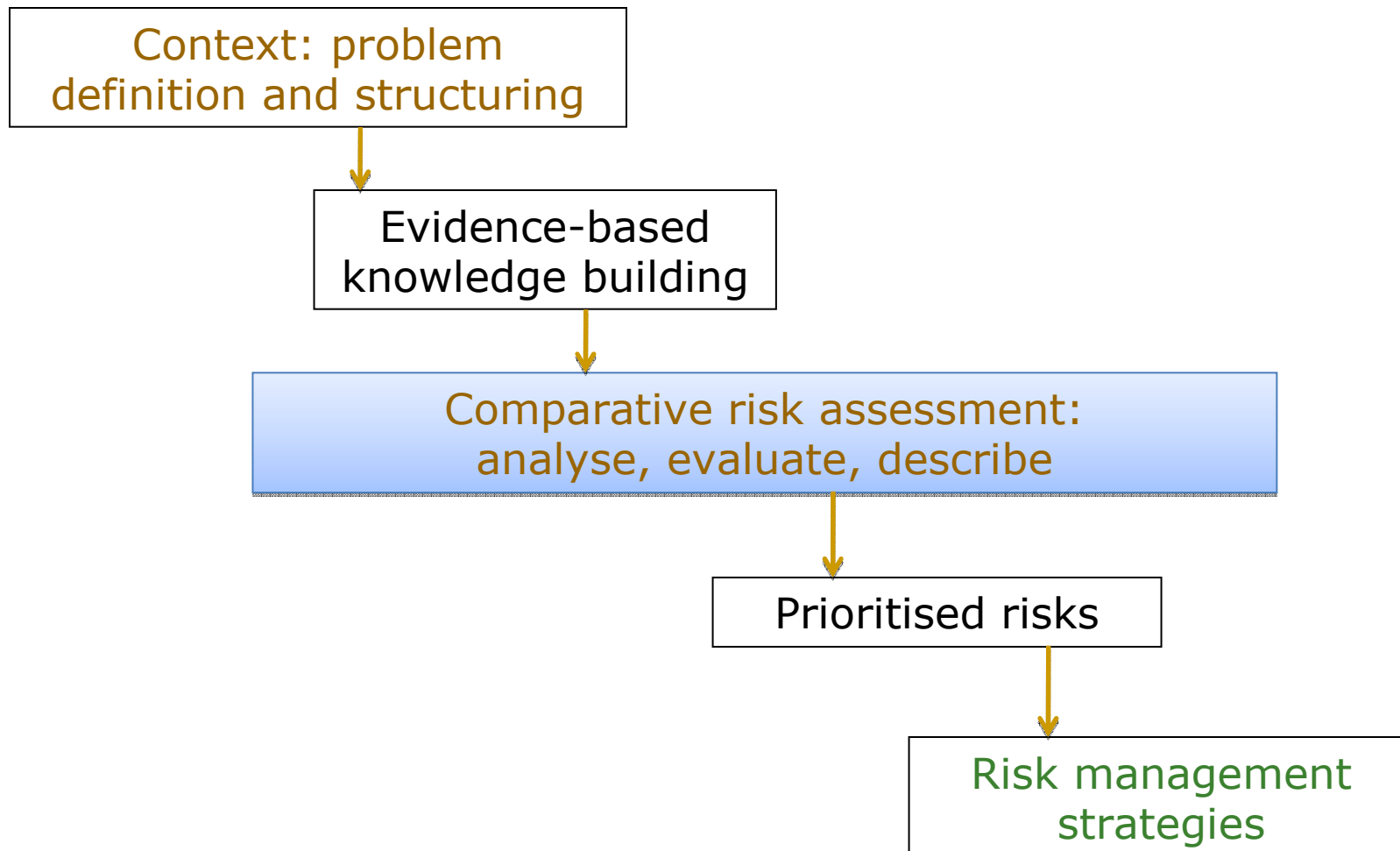
Comparative Risk Assessment

- ❑ Provides an assessment and ranking of risks to an ecosystem that arise from its exposure to one or more hazards, where
- ❑ Ecological RISK is a function of:
the LIKELIHOOD and CONSEQUENCE of a HAZARD to which an ecological or resource asset is exposed.

$$\text{Risk} = f(\text{likelihood, consequence})$$

- ❑ The output is a prioritised list of risks, with full diagnostic and causal descriptions for each priority risk.

Procedure for CRA



Inherent or residual risk

- ❑ Inherent risk refers to that risk which would exist without current control programs
- ❑ Residual risk refers to the current level of risk, assuming reasonable compliance with present environmental laws and regulations

Why adopt an ecological approach?

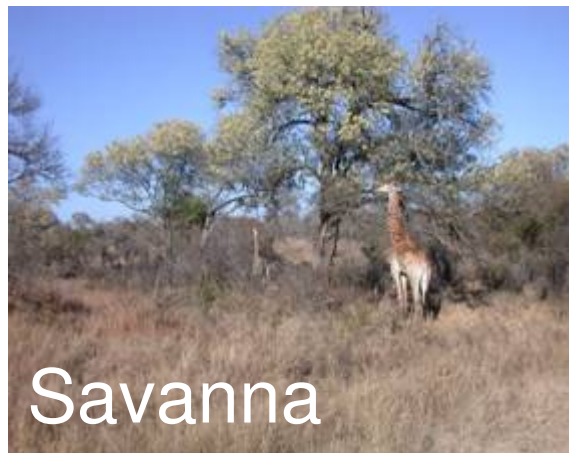
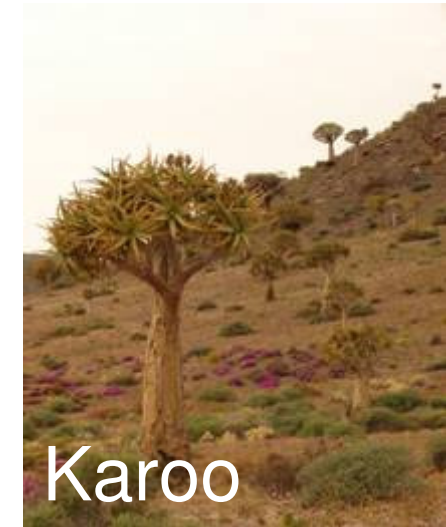
- The South African landscape is mostly dominated natural vegetation, even if partly transformed
- Ecological classifications are based on “natural” fire risk
 - Prevailing climate
 - Natural fire regime



Steps in assessing veldfire risk

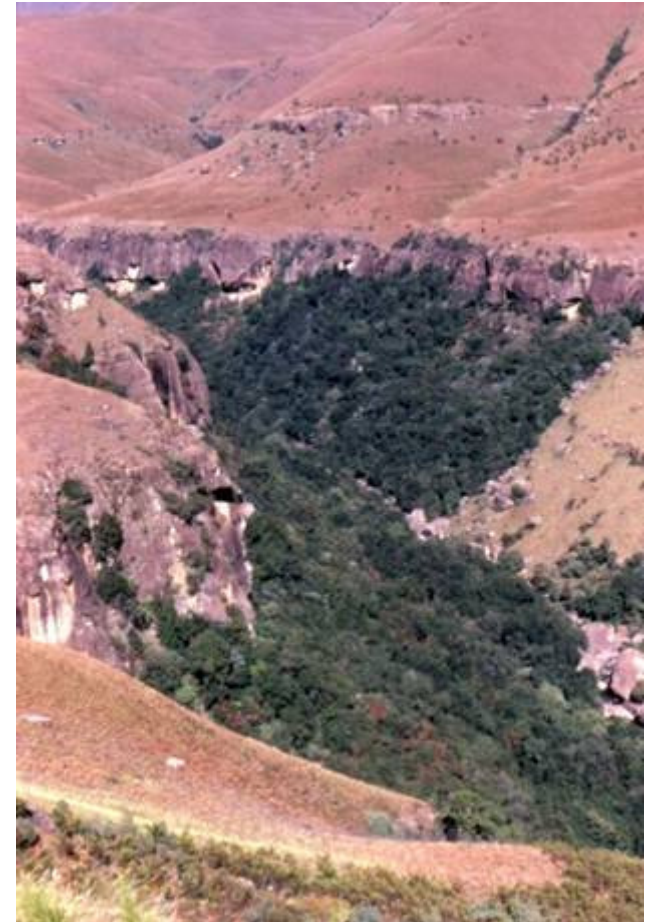
- a) Determine fire-ecology type
- b) Assume a critical veldfire scenario for each fire-ecology type
- c) Assess the likelihood of such a scenario
- d) Judge consequences of such a scenario on basis of available information
- e) Classify the risk on the basis of likelihood and consequence

Determining fire-ecology types

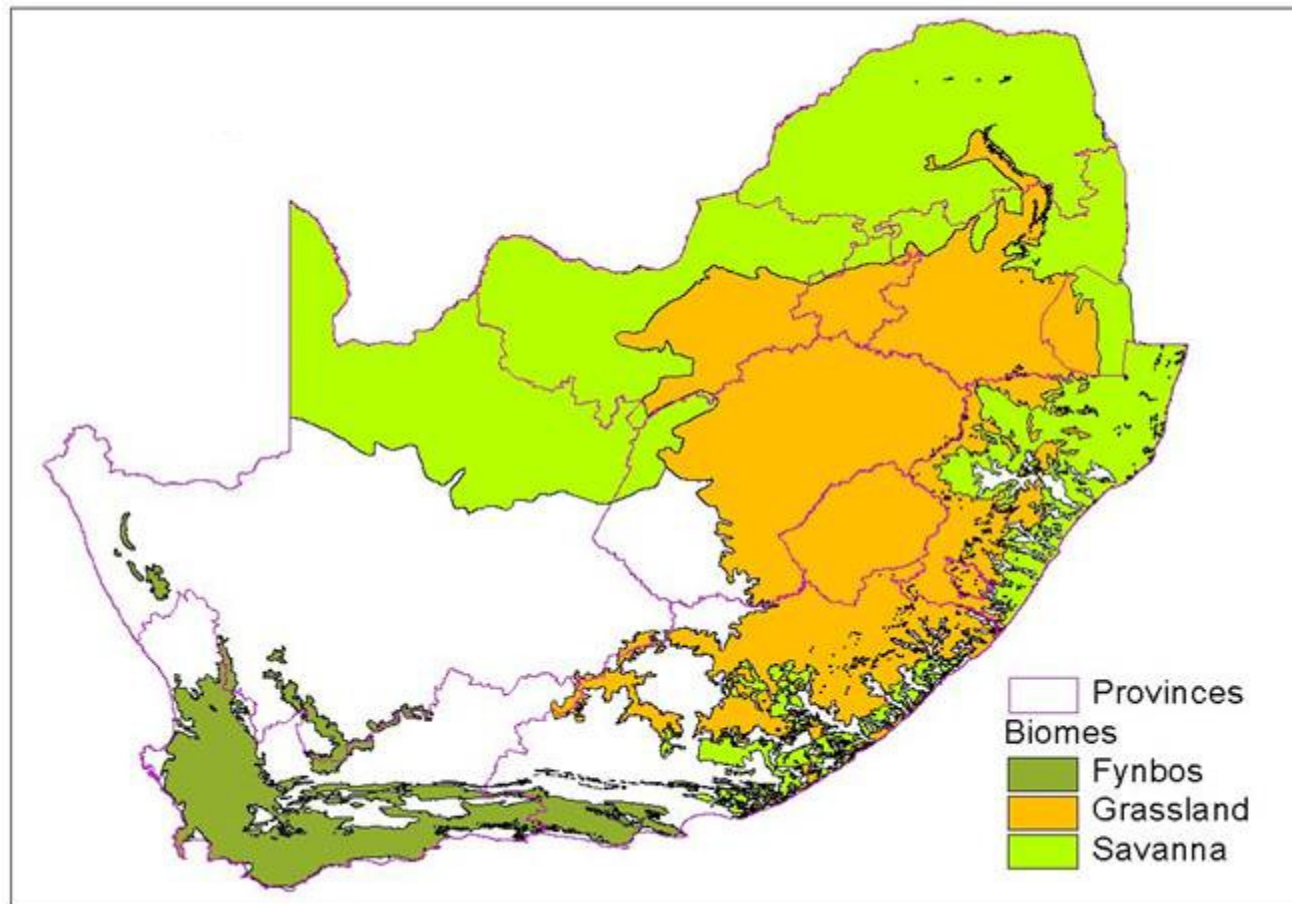


Fire- and climate-dependence

- ❑ Fire-dependant **requires fire** to maintain its biodiversity and structure
- ❑ Climate-dependant vegetation **does not require** fire to maintain biodiversity and structure



Fire dependant ecosystems

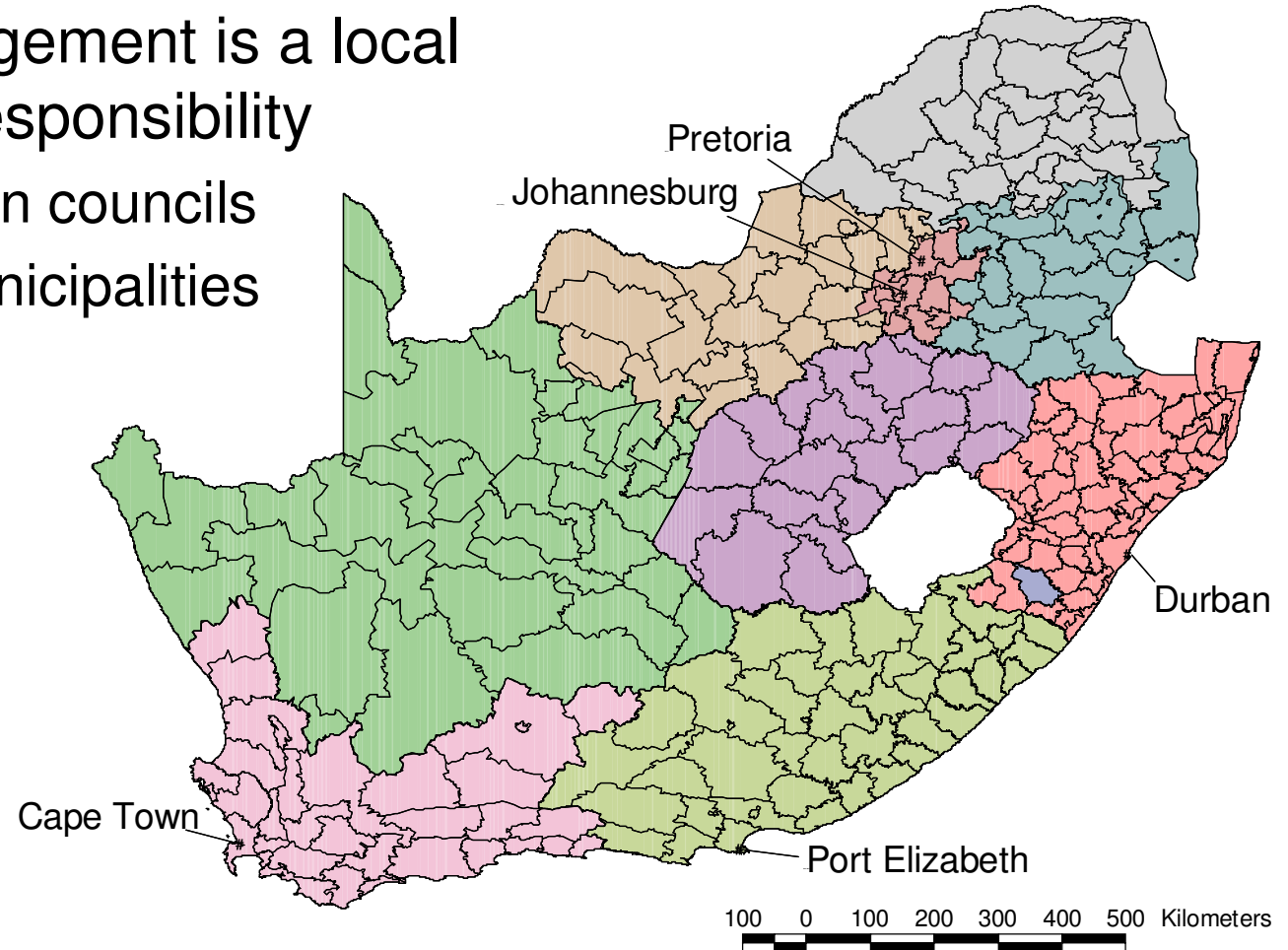


Example of a fire-ecology type

Fire Ecology type	Fire regime type	Typical acceptable fire regime	Notes
Sour Grassland	Fire dependent / influenced	Dry winter season, at intervals of 1 to 4 years	Potential bush encroachment if fire is excluded

4. ASSIGNING VELD FIRE RISK

- Veldfire management is a local government responsibility
 - 6 metropolitan councils
 - 231 local municipalities



Assigning fire-ecology types to municipalities

- ❑ Determine extent of fire-ecology types within each municipality
 - ❑ Dominant fire-ecology type
 - ❑ Use “>30% rule” if no fire-ecology type dominates



Determining veldfire risk levels

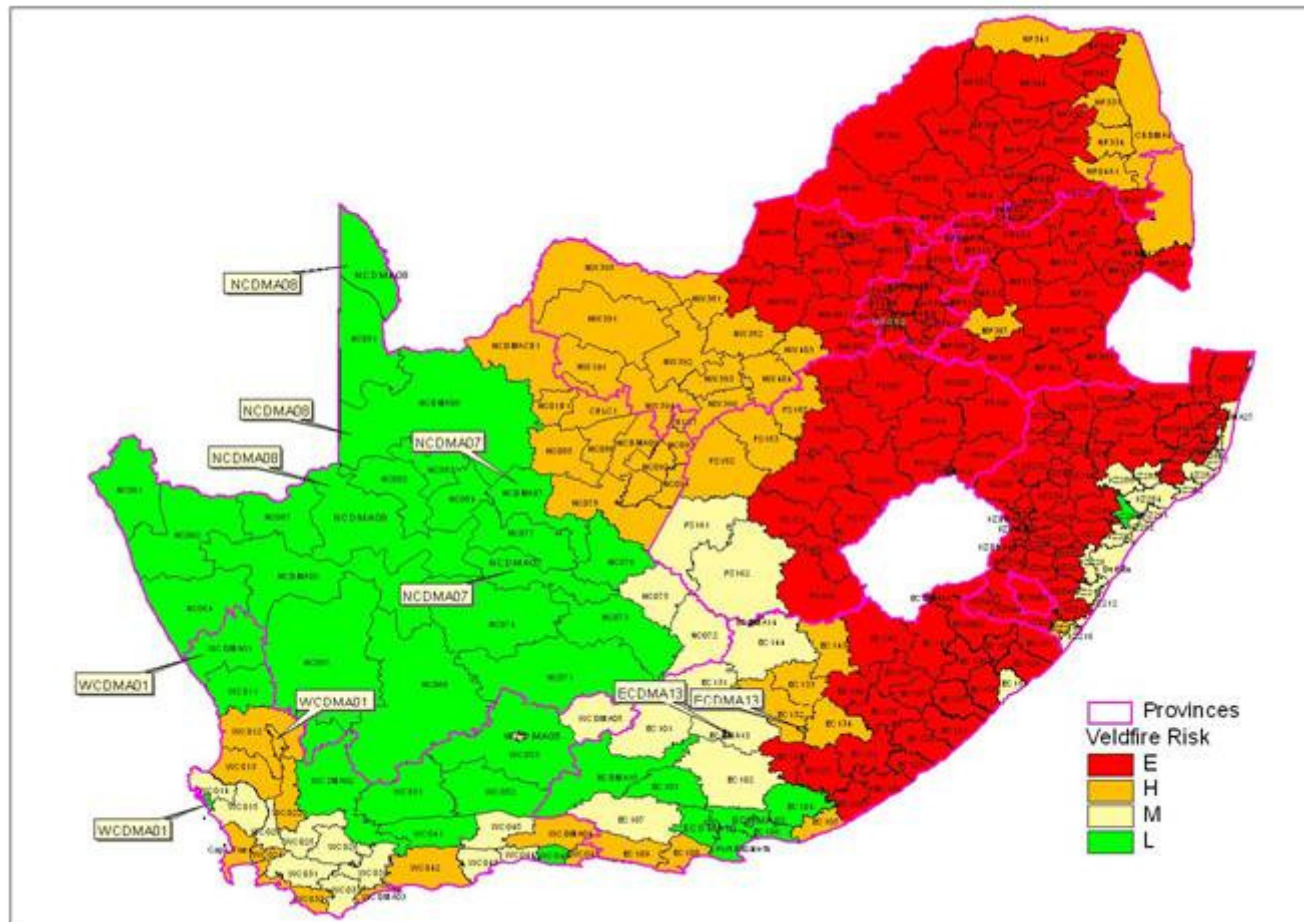
Likelihood Rating	Consequence Rating				
	Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain	Medium	Medium	High	Extreme	Extreme
Likely	Low	Medium	High	Extreme	Extreme
Possible	Low	Medium	High	High	Extreme
Unlikely	Low	Low	Medium	High	Extreme
Rare	Low	Low	Low	Medium	High

(Adapted from Standards Australia, 1999)

Extreme and high veldfire risk

Fire-ecology type	Veldfire risk	% of area
Arid Woodland	High	16.73%
Moist Woodland	Extreme	10.47%
Sour Grassland	Extreme	18.88%
Sweet Grassland	High	7.26%
Fynbos	High	3.3%
		56.7%

South African municipalities classified by veldfire risk



5. CONCLUDING REMARKS

- Legislation allows for:
 - Protection of both assets and the environment
 - Co-operation across sectors

- Fire-dependant vegetation:
 - Covers 44% of the country
 - At risk of ecological degradation if fire mismanaged

Concluding remarks

- ❑ Extreme or high veldfire risk:
 - ❑ 57% of the country
 - ❑ Humid areas with sour grasslands
 - ❑ 75% of municipalities

- ❑ Risk assessment:
 - ❑ Useful approach
 - ❑ Combines ecology and policy
 - ❑ Land use patterns are changing rapidly
 - ❑ Refinements needed at municipal level



Revision of national veldfire risk assessment (profile)

- ❑ Improved information (e.g. Land cover and vegetation)
- ❑ Revisit and analysis and mapping units
- ❑ Review critical fire scenarios
- ❑ Improved consequence models (proxy measures)
- ❑ Hold consultative workshops

Thank you